

REMARKS

This Amendment and Response to Non-Final Office Action is being submitted in response to the non-final Office Action mailed August 28, 2006. Claims 1-15 are pending in the Application. Claims 1, 6-9, and 14-15 stand rejected under 35 U.S.C. 102(e) as being anticipated by Shiozawa (U.S. Publication No. 2001/0005358). Claims 2 and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the Microsoft Dictionary. Claims 3 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the IEEE Dictionary. Claims 4 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the IEEE Dictionary, in further view of the Microsoft Dictionary. Claims 5 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of de Boer et al. (U.S. Patent No. 6,917,759).

In response to the above rejections, Claims 1, 5, 8, and 9 have been amended to further clarify the subject matter which Applicants regard as the invention, without prejudice or disclaimer to continued examination on the merits. These amendments are fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendments, reconsideration of the Application is respectfully requested in view of the following remarks.

Rejection of Claims 1, 6-9, and 14-15 Under 35 U.S.C. 102(e): Shiozawa

Claims 1, 6-9, and 14-15 stand rejected under 35 U.S.C. 102(e) as being anticipated by Shiozawa (U.S. Publication No. 2001/0005358).

Shiozawa discloses a method for restoring flow in a packet transfer network. A working route and a reserved route are set in the packet transfer network, the reserved route branching from the working route at a start-point router. Each router other than the start-point router on the working route determines whether a failure occurs in a link to a next-hop router on the working route, and whether an incoming packet is to be protected. When a router receives a packet to be protected in case of the occurrence of the failure, the packet to be protected is redirected back to the start-point router. The start-point router then forwards the packet to be protected to the reserved route. See Shiozawa, paragraph 10.

Contrast that with Applicants' claimed invention. Claim 1 currently recites:

1. (Currently Amended) A method of maintaining a network connection in an optical network, the optical network including a plurality of switching nodes and an egress switching node, a plurality of spans including working and protecting fibers operatively connecting the switching nodes, and carrying a plurality of channels, the method comprising:

obtaining channel assignment data including the channels assigned to the network connection on each of the plurality of spans used by the network connection;

propagating the channel assignment data to the switching nodes in the optical network;

storing, at the switching nodes, the channel assignment data;

monitoring the optical network for a failed span and notifying the optical network in response to the failed span, wherein the switching nodes perform a switching operation in response to the notification in order to switch the network connection to the protecting fiber;

determining which channel the network connection utilized on the failed span based on the channel assignment data and the notification of the failed span; and

dropping the channel selected by said determining step ***from the working fiber and onto the protecting fiber at the egress switching node,***

avoiding at least one switching node coupled to the failed span, and creating a shorter optical pathway for a restored network.

When a failed span is detected in the Shiozawa network, the switching node adjacent to the failed span forwards the packet back to the start-point router. The start-point router then directs the packet along the protected route. Each packet that would otherwise traverse the failed span must be forwarded to this adjacent switching node before it is redirected back to the starting point router, and then forwarded along a protection line. The start-point router does not drop any channel. Each packet continues to be forwarded from the start-point router, just as if no span failure had ever taken place. It is only when the packet reaches the node adjacent the failed span that the packet is redirected.

In contrast, in the present invention, when a span failure is detected, the egress node is notified of the failed span. The egress node then drops the working fiber channel corresponding to the failed span. The egress node then reassigns the channel corresponding to the failed span directly to the protection fiber. Upon entering the egress node, packets are then directly routed to the protection fiber, without the need to traverse to a node adjacent the failed span. This is reflected in Claims 1 and 8.

With regard to the Examiner's other points, Applicants offer the following observations.

With regard to the "plurality of spans including working and protecting fibers," the Examiner points to elements 206.1-206.6 of Figure 1. Shiozawa describe these in paragraph 27 as "control lines" that connect routers to the network management server. There is no disclosure on these control lines containing both working and protecting fibers.

With regard to the "propagating the channel assignment data to the switching nodes," the Examiner points to Shiozawa paragraph 47. This paragraph discloses nothing more than address information that is appended as a header to most packets, and is well known in the art. "Channel assignment data," is the specific optical or electrical channel

that is used to connect or span two network devices, whether it is a specific Time Division Multiplexed channel, Wavelength Division Multiplexed channel, a TDM over WDM channel, or a Code Divisional Multiplexed channel. See Application as filed, page 4, line 22 though page 5, line 4. Thus, the cited Shiozawa passage does not anticipate the current limitation.

With regard to the “storing, at the switching nodes, the channel assignment data,” the Examiner cites Shiozawa paragraph 13. This paragraph states only that “information indicating where a packet to be protected is forwarded to” is stored in a table. This is not the channel assignment data as called for in the claims.

With regard to “the switching nodes performing a switching operation in response to the notification in order to switch the network connection to the protecting fibers,” the Examiner cites paragraph 44. This paragraph provides only that the network device is provided with a “packet-protection information management table,” and says nothing regarding switching from one channel to another based on a fault/failure detection.

With regard to “dropping the channel selected by said determining step...” the Examiner points to paragraph 7. Paragraph 7 discloses an entirely different fault protection scheme, wherein duplicate information packets are transferred over separate fibers. The information packet arriving later in time is discarded. This is entirely separate from the Applicants’ claimed method. When a failed span is detected, the egress node uses the channel corresponding to the failed span to route packets onto the protection fiber. In this manner, packets do not first have to traverse to the failed device before they are sent back to the egress node (with different header information) for rerouting, as is described in Shiozawa.

Applicants believe the claims as filed to be distinguishable from the cited art. However, in order to advance prosecution, the Applicants have amended Claims 1 and 8 to further delineate the differences between the Applicants’ invention and the cited art. In

light of the amendments to the claims, and the comments presented herein, Applicants submit that the rejection of Claims 1, 6-9, and 14-15 under 35 U.S.C. 102(e) as being anticipated by Shiozawa has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 2 and 10 Under 35 U.S.C. 103(a):

Shiozawa and Microsoft Dictionary

Claims 2 and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the Microsoft Dictionary.

Applicants submit that the comments presented above are equally applicable to the current rejection. The Microsoft Dictionary reference does not overcome the deficiencies pointed out in Shiozawa as related to independent Claims 1 and 8. Therefore, in light of the amendments to the claims, and the comments presented above, Applicants submit that the rejection of claims 2 and 10 under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the Microsoft Dictionary has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 3 and 11 under 35 U.S.C. 103(a):

Shiozawa and IEEE Dictionary

Claims 3 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the IEEE Dictionary.

Applicants submit that the comments presented above are equally applicable to the current rejection. The IEEE Dictionary reference does not overcome the deficiencies pointed out in Shiozawa as related to independent Claims 1 and 8. Therefore, in light of the amendments to the claims, and the comments presented above, Applicants submit that the rejection of 3 and 11 under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in

view of the IEEE Dictionary has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 4 and 12 under 35 U.S.C. 103(a):

Shiozawa, IEEE Dictionary, and Microsoft Dictionary

Claims 4 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the IEEE Dictionary, in further view of the Microsoft Dictionary.

Applicants submit that the comments presented above are equally applicable to the current rejection. Neither the IEEE Dictionary reference nor the Microsoft Dictionary Reference overcomes the deficiencies pointed out in Shiozawa as related to independent Claims 1 and 8. Therefore, in light of the amendments to the claims, and the comments presented above, Applicants submit that the rejection of claims 4 and 12 under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of the IEEE Dictionary, and in further view of the Microsoft Dictionary, has now been overcome and respectfully request that this rejection be withdrawn.

Rejection of Claims 5 and 13 under 35 U.S.C. 103(a):

Shiozawa and de Boer et al.

Claims 5 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozawa in view of de Boer et al. (U.S. Patent No. 6,917,759).

Applicants submit that the comments presented above are equally applicable to the current rejection. De Boer et al. do not overcome the deficiencies pointed out in Shiozawa as related to independent Claims 1 and 8. Therefore, in light of the amendments to the claims, and the comments presented above, Applicants submit that the rejection of Claims 5 and 13 under 35 U.S.C. 103(a) as being unpatentable over Shiozawa

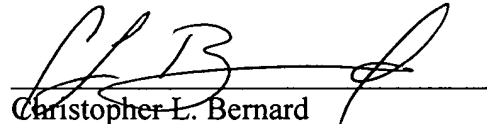
in view of de Boer et al. has now been overcome and respectfully request that this rejection be withdrawn.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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